cytokine levels and higher IFITM levels in the frontal cortex in a manner similar to that seen in schizophrenia. In contrast, exposure to immune stimulation in utero (i.e., maternal immune activation) did not recapitulate schizophrenia-related immunemarker expression abnormalities in the frontal cortex.

In the prefrontal cortex of schizophrenia subjects, the markedly higher mRNA levels for cytokines and transcription factors that induce IFITM expression (e.g., IL-6, interferon-β, and NF-κB), and lower mRNA levels for Schnurri-2, which suppresses IFITM expression, suggest that this combination of molecular mechanisms accounts for the elevated levels of IFITM mRNAs in the illness (Figure 1B). In addition, mRNA levels of NF-κB, a critical transcription factor that regulates the expression of many immune-related genes, including the

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**FIGURE 4. Transcript Levels for Immune System-Related Markers in the Frontal Cortex of Adult Mice Exposed Either Prenatally or in Adulthood to Immune Stimulation**

Panel A illustrates transcript levels for three variants of IFITM (IFITM1, IFITM2, IFITM3) in the frontal cortex of adult offspring (circles indicate males, triangles indicate females) of pregnant mice exposed to either normal saline (NS) or poly(I:C) [P(I:C)] daily for 3 days of gestation (embryonic day 11–13 [E11–13]: N=7 males and 7 females per condition; embryonic day 15–17 [E15–17]: N=8 males and 8 females per condition). Black bars indicate mean mRNA levels of both sexes combined for each condition. IFITM mRNA levels did not differ in adult offspring (i.e., male alone, female alone, or sexes combined) exposed prenatally to maternal immune activation in either middle (E11–13) or late (E15–17) gestation. In panel B, transcript levels for immune-related markers including different variants of IFITM, cytokines, and nuclear factor (NF)-κB were markedly higher in the frontal cortex of adult female mice exposed to poly(I:C) (N=8) relative to mice exposed to normal saline (N=8) daily for 3 days (df=14 in all analyses).